

Industrial Pretreatment Made More Efficient Representative Through the Use of YSI Technology



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YSI Wastewater Continuous Monitoring
Application Note A501-03

Anyone involved in water resource recovery facility (WRRF) operation and maintenance knows that, of all the potential problems that could arise in a facility, the greatest singular threat is toxic influent from industrial waste discharges. A well-operated, well-maintained WRRF can be brought to complete upset - and to effluent permit violations - in a matter of hours through the introduction of acids, bases, or toxins (i.e., metals, solvents) to the facility.



YSI sonde deployed at a metal coating/metal anodizing industrial waste pretreatment site.

The US EPA has established specific criteria and regulations for the pretreatment of industrial waste discharges to wastewater collection systems, and requires that discharges are monitored and regulations are enforced. However, these requirements are not always followed and accidents do happen, placing the condition of the receiving WRRF and its effluent quality in danger. At the front line of defense of every WRRF receiving industrial waste influents are the industrial waste pretreatment coordinators and their monitoring staffs.

The City of Akron, Ohio also has an industrial waste sampling and analysis program. Industries typical to the city are manufacturers of adhesives, synthetic rubber, polymers, resins, and organics; metal plating; metal coating and anodizing; and food processing—the waste streams of which flow to Akron's municipal WRRF. To protect this facility, the staff monitor industrial discharges for pH, temperature, cyanide, organics, and a variety of metals. The work is tedious, technical, time-consuming, and can be dangerous. "Every [sampling] location is different," reports the staff, "the monitoring point might be in a tank, trough, or pipe, in the plant itself, or in the middle of the road...".

SOLUTION

For a number of years this program was conducted using historical practices involving frequent visits to each monitoring location and collecting samples for lab analysis using a combination of manual grabs and automated samplers for collection. As the program grew and personnel resources

became more limited, the City began searching for alternatives. This search led them to discover the availability of a number of YSI multiparameter water quality monitoring sondes.

Considering that the use of this technology might be a viable option, they contacted Steve Fondriest of Fondriest Environmental, YSI's representative in Ohio. The team discussed pretreatment monitoring and the suitability of YSI sonde technology for this application. Ten YSI sondes were acquired and work began to redesign their program to include the new technology.

At the beginning of the program, the staff of Fondriest Environmental provided training on calibration, maintenance, and deployment of the sondes. During this training, Fondriest Environmental evaluated all sensors and sondes using diagnostics found within the sonde software, as well as with data analysis features found in YSI's desktop software. The software package complements the easy-to-use sonde software by providing options for data analysis, presentation, and file management.

The sondes allow the staff to keep up with routine site visits, as well as allowing them to perform special projects and studies. The sondes are easily concealed and can accurately monitor water quality parameters (pH, temperature, conductivity, and dissolved oxygen) discretely and continuously in many of the worst environments. These are distinct advantages especially considering that, at many sites, industrial waste is discharged 24 hours a day, and that accidents and unauthorized discharges do not always occur during routine site visits. "With the use of our YSI sondes we have cut our trips in half and collect data that more accurately describe the discharges being monitored".